Chapter 2
Proposed Action and Alternatives

This chapter describes the Proposed Action that OEA evaluated in the Draft EIS (Alternative B) and explains the analysis that resulted in the Applicant's modification to that alternative since the development of the Draft EIS. The Proposed Action described in the Draft EIS would have filled large, contiguous wetlands in the project area. The refined Proposed Action described in this Supplemental Draft EIS (Alternative B/B2) would fill far less wetlands, particularly in the Sevier River Valley.

In this chapter, OEA has updated information presented in Chapter 2, Proposed Action and Alternatives, of the Draft EIS to reflect the development of new alternatives that would minimally impact wetlands at both the northern and southern termini of the project. This chapter also describes the development of three new alternatives that would reduce the impact on affected wetlands and describes the re-evaluation of an alternative previously dismissed in the Draft EIS. These alternatives address issues raised by EPA in its informal comment letter and issues raised by USACE during informal consultation with OEA. This chapter also identifies OEA's recommendation for the Environmentally Preferred Alternative.

The proposed project area is bounded by SR 78 on the north and west and by SR 28 on the east. U.S. 50 and I-15 bound the study area on the south and west, respectively (see Figure 1-1, Project Location, in Chapter 1, Introduction and Background, of this Supplemental Draft EIS). This area includes Juab, Sanpete, and Sevier Counties. The Sevier River passes through the area, flowing from south to north and into the Sevier Bridge Reservoir.

2.1 Alternatives Analysis

As described in the Draft EIS, the Proposed Action is to construct a rail line from just southwest of Salina north to Juab, Utah, where it would connect with the existing UPRR mainline. The Applicant selected the Juab location and connection with the UPRR line in response to UPRR's stated preference that the rail connection should be at an existing siding (Marshall 2003). In addition to the proposed rail line, the Applicant would construct associated facilities to support rail line operations. The locations of the associated facilities would vary depending on which alternative segment, if any, the Board authorizes for construction.

The Draft EIS focused on a rail connection at Juab where it would connect with the existing UPPR siding. In accordance with its NEPA regulations, OEA identified a range of alternatives designed to provide a more direct connection to rail service from the coal industry and other potential shippers in parts of Juab, Sanpete, and Sevier Counties and central Utah than the current use of trucks. Appendix B, Corridor and Alternative Identification, of this Supplemental Draft EIS explains how the range of project alternatives was developed, including input from the public and agencies. In addition, Appendix B discusses why and how alternatives were eliminated from detailed consideration. The Draft EIS focused on three alternatives: the No-Action Alternative and two action alternatives (Alternatives B and C).

For detailed information, see Chapter 2, Proposed Action and Alternatives, of the Draft EIS. OEA's alternatives analysis for the Draft EIS is described in Appendix B of this Supplemental Draft EIS.

Since the Draft EIS was issued, OEA, in response to concerns raised by EPA and others in informal comments on the Draft EIS, identified three additional alternatives to mitigate wetland impacts. These alternatives are referred to as Alternatives B1, B2, and B3 in this Supplemental Draft EIS. These alternatives would reduce the impact on wetlands in the study area by shifting Alternative B (the Applicant's Proposed Action in the Draft EIS) away from contiguous wetlands in the study area on the northern and southern segments of the project while minimizing impacts to farmland and still meeting the project's purpose and need for an efficient direct rail connection.

This Supplemental Draft EIS also re-evaluates Alternative N1, which was considered and eliminated in the Draft EIS. For the purpose of maintaining continuity with the Draft EIS, we have retained the designation of Alternative N1 from the Draft EIS. OEA considered two possible routes for this alternative, which are designated as Alternatives N1a and N1b in this Supplemental Draft EIS. OEA evaluated Alternative N1 as two alternatives so that a reasonable determination of feasibility and a comparison of alternatives could be made. Alternatives N1a and N1b were eliminated from detailed consideration for reasons described later in this chapter.

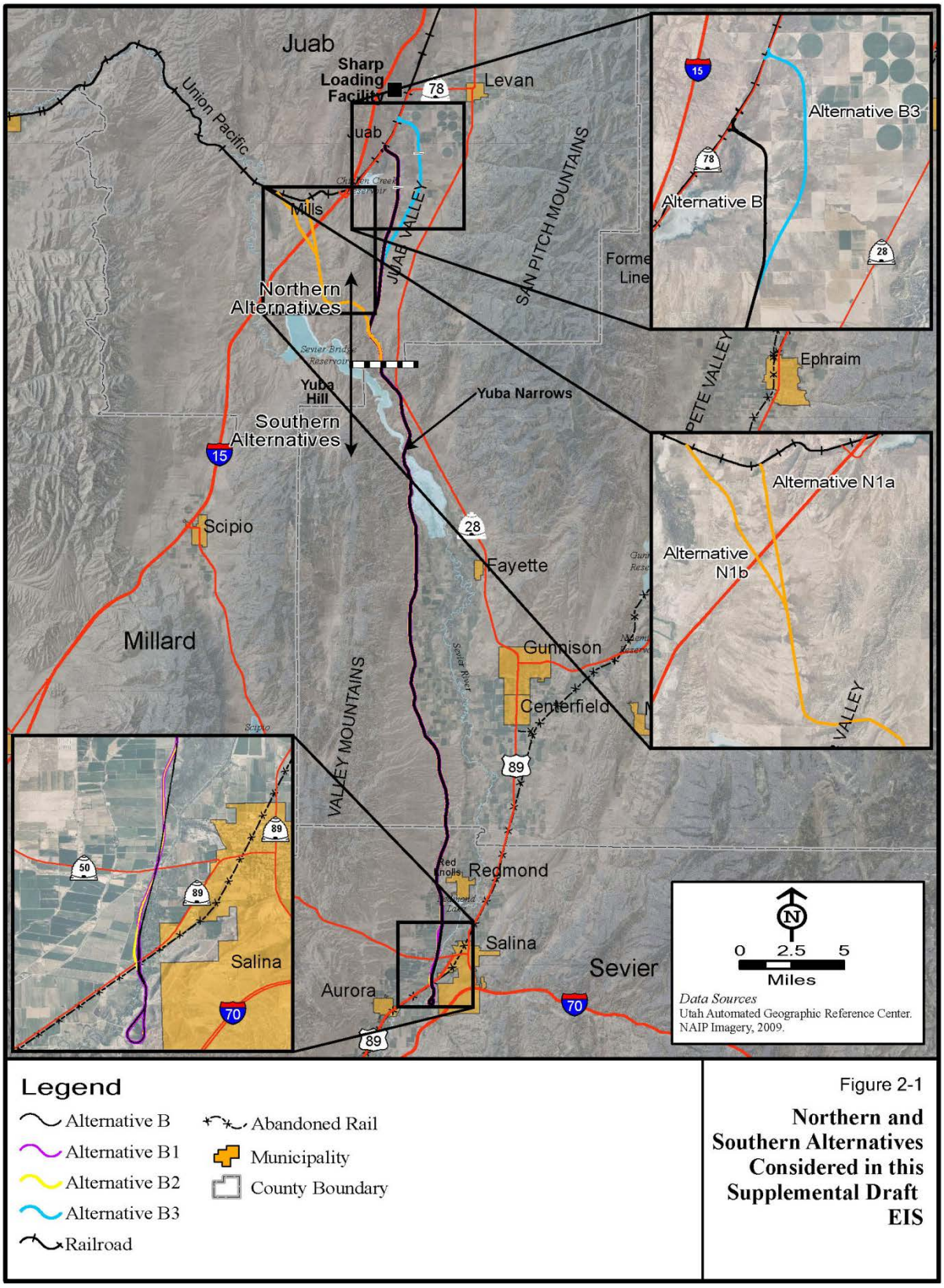
OEA's analysis of these alternatives was supported by a detailed wetland investigation conducted by the Applicant (Bio-West 2009) (referred to in this Supplemental Draft EIS as the 2009 wetland investigation). The Applicant's wetlands investigation will be included as part of its Section 404 permit application (see Section 3.1, Wetlands and Waters of the U.S., of this Supplemental Draft EIS) when filed with USACE. Wetlands were identified over the length of the project (about 43 miles), and the width of the investigated area varied from about 150 feet to more than 600 feet in the areas that could include multiple alignment alternatives (Bio-West 2009).

The investigation showed that nearly 80 percent of the wetlands in the investigated area were in the southern third of the study area, and the remaining 20 percent were at the northern end of the proposed corridor in the Chicken Creek Reservoir area. Consequently, OEA's analysis focused on identifying alternatives near the two termini that would avoid or reduce the impacts on those wetlands, would avoid or have limited impacts on other resource areas, and would meet the project's purpose.

Because the alternatives considered in this Supplemental Draft EIS converge near a common point northeast of Yuba Hill on the Juab County–Sanpete County border (about 11 miles northwest of Fayette), the project area was divided at this common point. This division created two groups of corridors, and the alternatives are referred to as northern and southern alternatives (see Figure 2-1 below).

The following sections describe the processes used to identify, evaluate, and select alternatives for detailed consideration in this Supplemental Draft EIS.

Figure 2-1. Northern and Southern Alternatives Considered in This Supplemental Draft EIS



2.1.1 Alternatives Considered for this Supplemental Draft EIS

The northern alternatives discussed in this section are Alternatives B, B3, N1a, and N1b.

2.1.1.1 Northern Alternatives

At the north end of the project area, the proposed rail line would interconnect with UPRR's Sharp Subdivision, which includes the Juab and Sharp sidings as well as track in the Mills area (west of I-15). This subdivision is part of UPRR's network of nearly 32,000 track-miles (which carry nearly 900 trains daily, on average). On average, the Sharp Subdivision has between five and 10 trains daily. In the area of the proposed connection, there is a 1.27-mile siding at Juab and a 2.69-mile siding at Sharp. There is no existing track siding in the Mills area. The Sharp siding, where coal from the SUFCO mine is currently transferred from truck to rail transport, is located 2.39 track-miles east of the Juab siding.

The Juab and Sharp sidings are controlled remotely by the UPRR Harriman Dispatch Center (HDC) in Omaha, Nebraska. Rail professionals at the HDC coordinate moves of locomotives and trains, manage traffic and train crews on UPRR's network, and coordinate interchanges with other railroads. Any actions taken by SCAOG to connect the northern end of its proposed project to UPRR's network must be coordinated with UPRR, and the new rail line would ultimately be controlled at the HDC.

In the Draft EIS, OEA evaluated two alternatives that would connect with the existing UPRR mainline on the north: one near Mills and the other at the existing siding at Juab. The alternatives extend south from these termini and converge near Yuba Hill. For this Supplemental Draft EIS, OEA has re-evaluated the alternative connection at Mills (Alternative N1 in the Draft EIS)[1] and evaluated two alternatives near Juab (Alternatives B and B3) (see Figure 2-2 below).

The Applicant's 2009 wetland investigation (Bio-West 2009) indicated that the Applicant's preferred connection at Juab would fill 1.5 acres of wetlands in Chicken Creek Reservoir. The Draft EIS also stated that a connection at Mills, rather than Juab, might have fewer impacts to regional wetlands but would involve several operational, maintenance, and liability issues related to a grade-separated crossing of I-15 and the steep grades near the connection with the UPRR mainline. To construct the connection at Mills, the rail grade would need to be separated from the highway grade at the I-15 crossing. The rail grade would need to be about 30 feet higher than the existing I-15 grade. This would require ongoing track maintenance and would create traffic safety issues.

Alternative Connections at Mills - Alternatives N1a and N1b

Given USACE's concerns, OEA re-evaluated the northern connection at Mills. Alternative N1 was previously evaluated and dismissed from consideration in the Draft EIS because of safety, construction, and operational issues. In this Supplemental Draft EIS, Alternative N1 is evaluated as two different options: Alternatives N1a and N1b (see Figure 2-3 below). The impacts of these options are compared to rail construction and operation alternatives with northern connections near Juab (Alternatives B and B3).

[1] In this Supplemental Draft EIS, Alternative N1 was evaluated as two options (Alternatives N1a and N1b) to address feasibility and evaluate impacts associated with rail construction and operation.

Figure 2-2. Northern Alternatives Evaluated by OEA

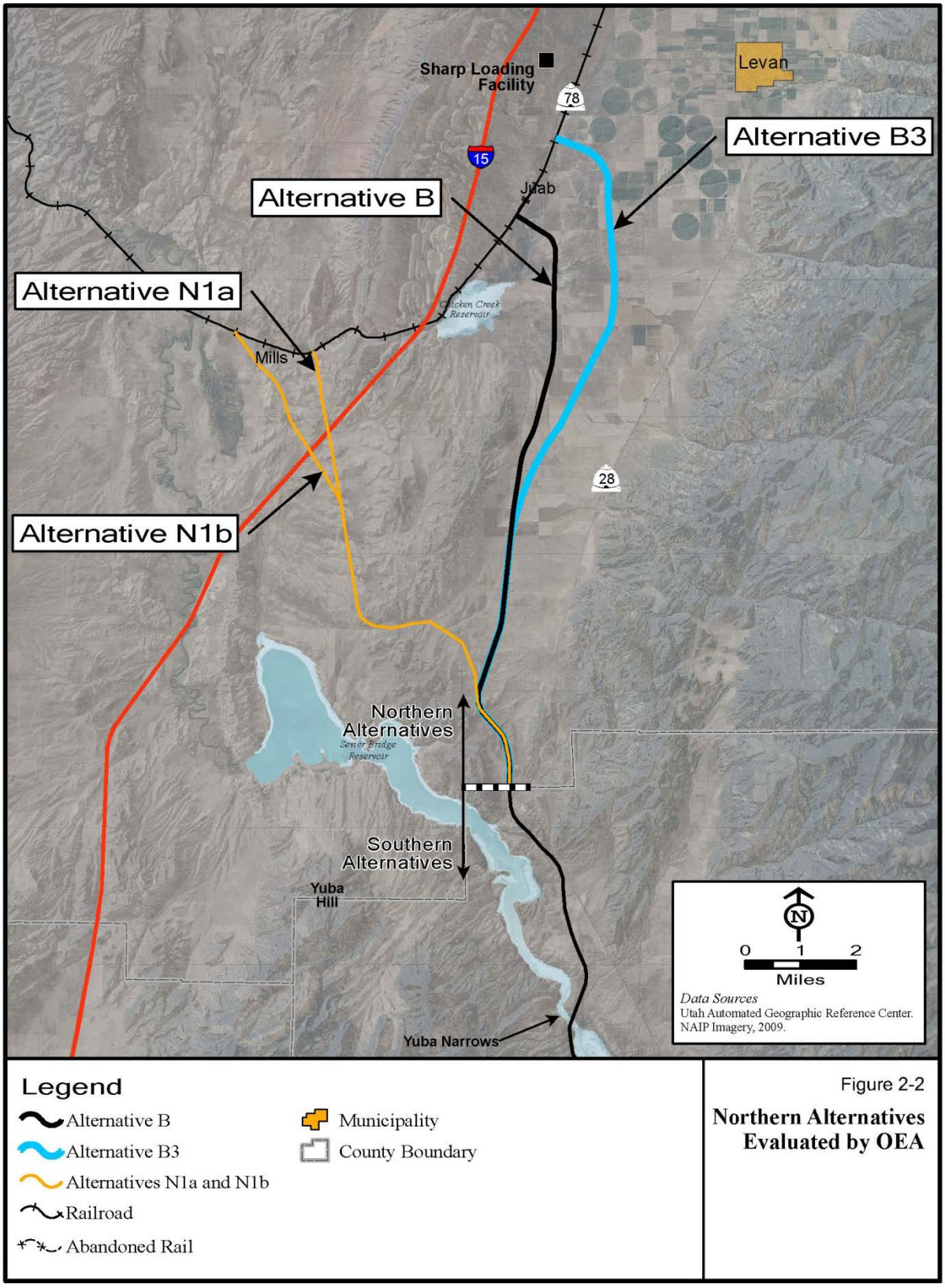
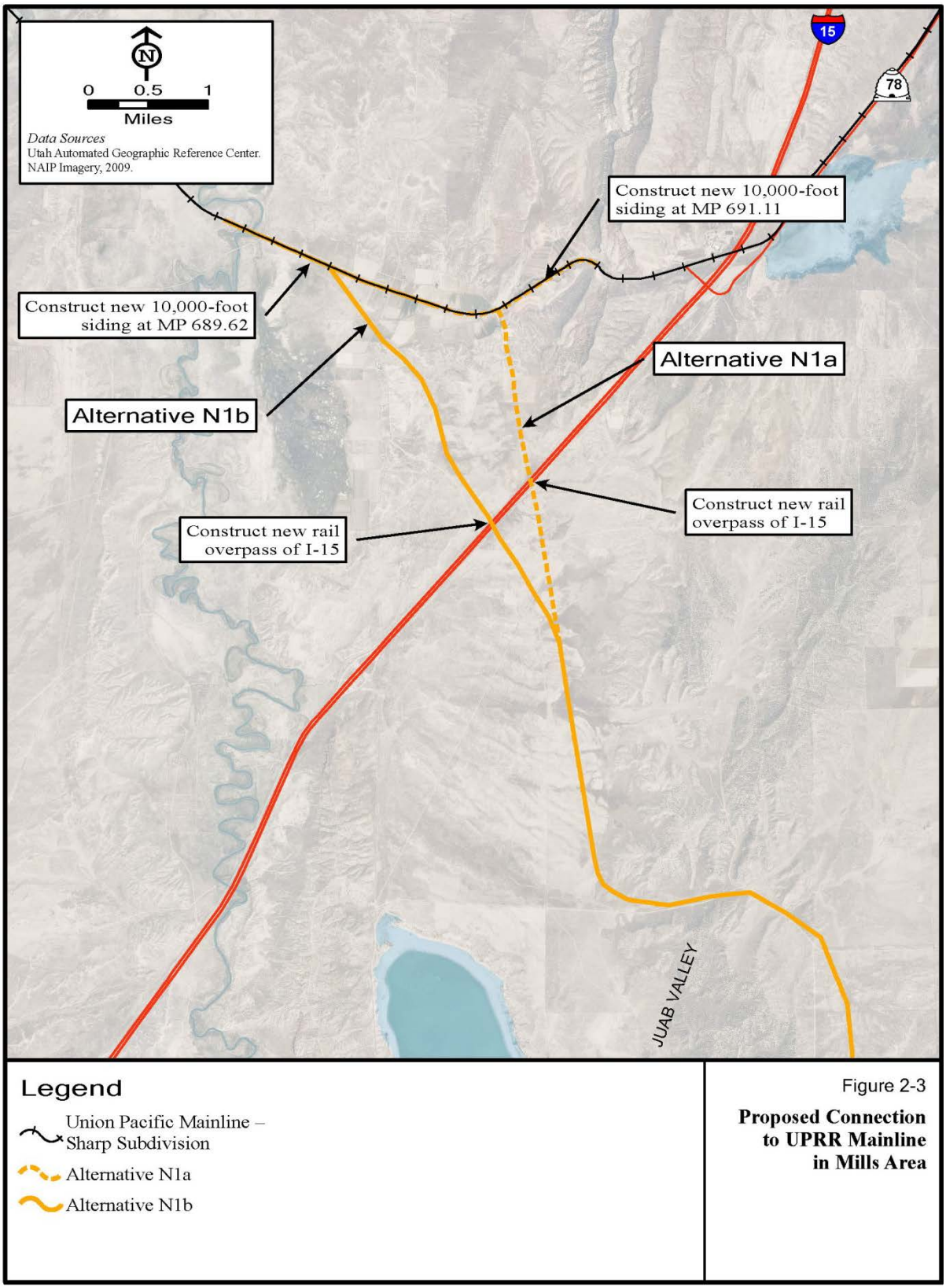


Figure 2-3. Proposed Connection to UPRR Mainline in Mills Area



Alternative N1a would connect with the UPRR mainline near the intersection of Washboard/ Valley Road and Mills Road. This location was chosen to avoid having to double-track the mainline between a Mills connection and the Juab siding.[2] Of the four alternatives considered at the northern end of the study area in this Supplemental Draft EIS (Alternatives B, B3, N1a, and N1b), this alternative would have the shortest length. Because there is no existing siding on this segment, this alternative would require a new siding to meet current rail industry safety standards. According to UPRR's current practices, this new siding would be at least 10,000 feet long. The new siding would require turnouts[3] and control signals and switches to link the siding with the HDC.

Alternative N1b would connect with the UPRR mainline about 1 mile west of Washboard Road. It would be slightly longer than Alternative N1a and would require about the same length of a new siding as Alternative N1a.

Both alternatives would require extensive excavation (about 300,000 cubic yards) to construct the rail line because a high ridge separates the Mills area from I-15. Moreover, because of the design maximum grade constraints (1 percent maximum grade), deep cuts and imported fill material would be necessary to construct these alternatives. At the ridge peak, the cut depth would be over 50 feet. Near the southwestern corner of Chicken Creek Reservoir, the UPRR track crosses under I-15 and continues westerly towards Lynndyl, Utah. Consequently, new track from Alternative N1a or N1b would have to cross over I-15 via a new grade-separated crossing that would be about 30 feet higher than the I-15 grade.

Field reconnaissance of the Mills area found potential wetlands and other Waters of the U.S. that would be affected by Alternatives N1a and N1b (see Figure C-11, Wetland Impacts, in Appendix C, Detailed Wetland Maps, of this Supplemental Draft EIS). The required new siding for both alternatives would affect Chicken Creek and an adjacent wetland area (about 0.5 acre) located along the creek where it runs on the south side of the existing UPRR tracks.[4] In addition, the Alternative N1b alignment and required new siding might affect potential wetland areas of the Mills Meadow wetland complex.[5] The impacts of Alternatives N1a and N1b on other potential Waters of the U.S. are shown in Figure C-11.

Both alternatives would affect Chriss Creek near where these alternatives diverge from the Alternative B and B3 alignments. Near the northern terminus, these alternatives would affect other unnamed intermittent and ephemeral drainages as well as irrigation ditches that divert water from Chicken Creek Reservoir and Chicken Creek. The connection of these waters to the Mills Meadow wetland complex and the Sevier River, which would make these waterways jurisdictional, has not determined by USACE. Therefore, OEA concludes that the

[2] For safe rail operations, there must be enough distance between turnouts to allow trains to brake safely.

[3] A rail turnout is a mechanical installation that enables trains to be guided from one track to another, such as at a railway junction or where a spur or siding branches off.

[4] These wetlands are ditch wetlands, and their connection to the Mills Meadow wetland complex and the Sevier River has not been determined. OEA assumes that they are nonjurisdictional and are not subject to Section 404 requirements.

[5] The Mills Meadow wetland complex has not been formally delineated for this project. Potential wetlands in the area were defined using existing data sources including Natural Resources Conservation Service hydric and partially hydric soil data, U.S. Geological Survey topography maps, Utah Automated Geographic Reference Center (AGRC) shallow groundwater data, and aerial images.

wetland impacts associated with Alternatives N1a and N1b would be similar (about 0.5 acre) to those from Alternative B3, which is described below and in Section 3.1, Wetlands and Waters of the U.S., of this Supplemental Draft EIS.

The Utah Division of Wildlife Resources discovered the least chub (*Iotichthys phlegothontis*) in the Mills Meadow wetland complex in 1996 (UDWR 2007). The least chub is a fish classified as a sensitive species by the State of Utah and is a candidate species for listing under the Endangered Species Act by USFWS. The Division prepared a Conservation Agreement in 2005 (UDWR 2005) to expedite implementation of conservation measures to reduce threats to the least chub. A Programmatic Candidate Conservation Agreement with Assurances for Least Chub, which prescribes how landowners can undertake management activities to enhance, restore, or maintain habitat benefitting the species, has also been recently published (UDWR 2013).

These agreements discuss the importance of the Mills Valley site (identified as the potential wetland in Figure C-11) for protecting the least chub. For example, the Mills Valley has one of only six naturally occurring populations of least chub in Utah (UDWR 2005), and individual fish are collected from this area and distributed to other suitable habitats across the state. The Division has conducted extensive surveys throughout the historic range of the least chub and believes that all extant populations are documented (UDWR 2013).

Contrary to previous speculation by the Division, populations of least chub have not been identified in the Chicken Creek Reservoir or the Sevier Bridge Reservoir (UDWR 2013). Therefore, compared to Alternatives B and B3, Alternatives N1a and N1b have a higher potential to affect this sensitive species.

The impacts of a connection at Mills include:

- Slight reduction in traffic safety caused by a new rail bridge.
- Impact to about 0.5 acre of wetlands adjacent to an existing track.
- Extensive excavation to meet design rail grade limitations.
- Increased project costs for constructing a new siding and a new rail bridge over I-15.
- Increased operating costs for maintaining a bridge over I-15.
- Increased impacts to wildlife resources caused by new construction of rail line in the Mills Valley and the associated new siding. Specifically, there would be potential direct impacts to least chub habitat, a potential to change the hydrologic conditions of the Mills Meadow wetland complex due to the impacts to Mills-area waterways (potential Waters of the U.S.), and a potential to conflict with planned conservation measures for the least chub in the Mills Valley.

A connection at Mills would increase construction costs (by about $16 million to $19 million) due to the need for a new rail bridge over I-15 and the need for a new rail siding. The new bridge would add to the maintenance costs of the proposed rail line.

Given these construction and operational concerns and the potential environmental impacts listed above, the alternative at Mills was eliminated from further detailed consideration in the Draft EIS and this Supplemental Draft EIS. The alternative connection between Juab and

Sharp (Alternative B3) described below would fill a similar amount of wetlands (0.5 acre) with fewer construction concerns.

Alternative Connection at Juab - Alternative B (Proposed Action in the Draft EIS)

The Draft EIS stated that large, contiguous wetlands would be filled by the northern connection at Juab because of its location near Chicken Creek Reservoir. The information in the Draft EIS was based on available existing data (including data from the Natural Resources Conservation Service, maps from the U.S. Geological Survey, and aerial photographs) and field investigations intended to characterize resources in the study area, not a formal delineation of jurisdictional areas. Because the estimated acreage of impact was not based on true wetland delineations, further analysis found that the Draft EIS impact estimates for wetlands in the right-of-way were overstated (163 acres[6] in the Draft EIS compared to 12.3 acres [total alignment or 1.5 acres in the north] following the 2009 wetland investigation).

The 2009 wetland investigation found that the actual area of wetlands that would be filled is considerably less than the wetland areas preliminarily estimated in the Draft EIS. Data obtained from the wetland investigation revealed that the connection at Juab would fill about 1.5 acres of wetlands in the vicinity of Chicken Creek Reservoir (for more information, see Section 3.1, Wetlands and Waters of the U.S., of this Supplemental Draft EIS). The potential environmental impacts of a connection at this location are discussed in this Supplemental Draft EIS in Chapter 3, Environmental Consequences, and in Appendix D, which contains Chapters 3, 4, and 5, of the Draft EIS.

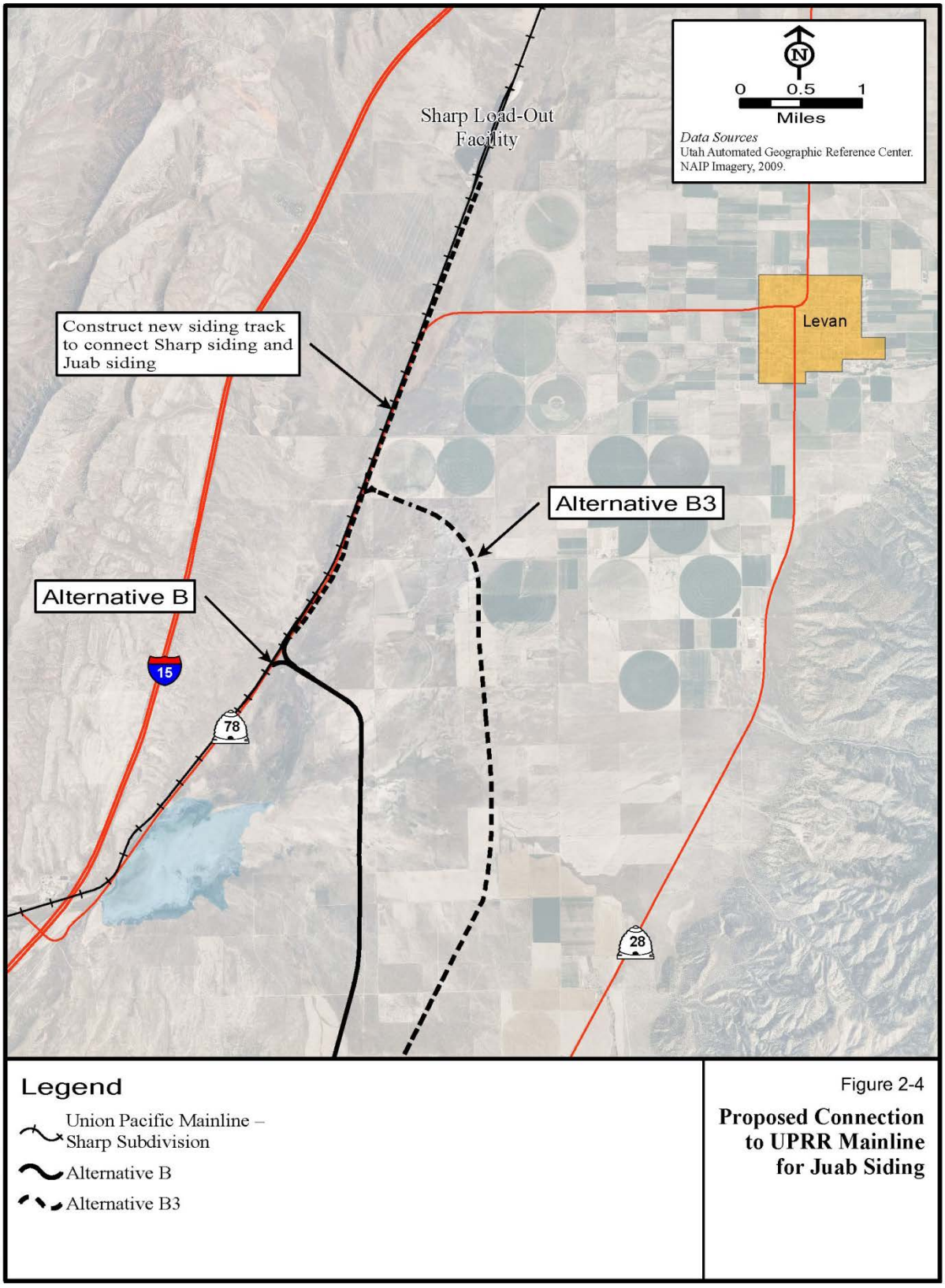
Alternative Connection between Juab and Sharp - Alternative B3

OEA also developed and examined a new alternative in the north segment that is referred to as Alternative B3 in this Supplemental Draft EIS (see Figure 2-4 below). The purpose of this analysis was to determine whether impacts to wetlands associated with Chicken Creek Reservoir could be avoided completely or reduced without the construction concerns associated with the northern connection near Mills.

Alternative B3 would be located northeast of the Juab siding and near the existing UPRR Sharp siding. This alternative was designed to avoid, to the extent practicable, wetlands around Chicken Creek Reservoir and to minimally impact irrigated cropland. This alternative does not have the engineering and safety-related concerns of the two Mills alternatives (Alternatives N1a and N1b). Construction of this alternative would require connecting the two existing sidings because of the proximity of this location to both the Sharp and Juab sidings (see Figure 2-4 below). Some new control signals would be required and at least one turnout would need to be relocated, but this action would be much less logistically complicated and less expensive than installing controls for a completely new siding at Mills.

[6] This value was subsequently found to be in error.

Figure 2-4. Proposed Connection to UPRR Mainline for Juab Siding



The track in this segment of the mainline is tangent (that is, a straight section of track without curves), thus minimizing any sight or track geometry constraints. The landscape is generally flat and gradually rises to the south away from the connection. Alternative B3 is about 1.9 miles longer than Alternative B and about 3.0 and 2.0 miles longer than Alternatives N1a and N1b, respectively. The potential environmental impacts of a connection at this location are discussed in Chapter 3, Environmental Consequences, of this Supplemental Draft EIS.

Alternative B3 would shift the location of the project's connection with the UPRR mainline toward the Sharp siding, where coal is now loaded into rail cars for shipment out of the region. This adjustment was made to avoid filling the wetlands in the Chicken Creek Reservoir area. The Applicant's wetland investigation found that about 20 percent of the wetlands in the project area are in the Chicken Creek Reservoir area.

UPRR's track in this area is rated as controlled-access only, and any new connection must comply with stringent UPRR requirements. To ensure continued rail operations, the proposed alignment must connect at a controlled siding to the mainline so that "through" rail operations can continue safely on the mainline track during periodic operations of the siding.

For safe rail operations, there must be enough track length between turnouts to allow trains sufficient distance to brake safely. Therefore, Alternative B3 would include track to connect the Juab and Sharp sidings (see Figure 2-4 above), and this proposed alternative would connect in this area.

Comparative Analysis of the Northern Alternatives

Table 2-1 below compares the northern alternatives. The Proposed Action in the Draft EIS (labeled as Alternative B, which is discussed in the following section) would have the simplest physical connection with the UPRR mainline but would have the greatest impact on wetlands (1.5 acres). In comparison, Alternative B3 would fill fewer wetland areas (0.5 acre total). Neither of these alternatives would require a grade-separated structure for I-15, and neither would require any new sidings or control systems to integrate with UPRR's operations. Alternative B3 would be more expensive than Alternative B.

The Mills alternatives (Alternatives N1a and N1b) would fill fewer wetlands than Alternative B but would affect about the same amount of wetlands as Alternative B3. The Mills alternatives would require a new grade-separated crossing of I-15. Either of these alternatives would require a new siding at Mills, which in turn would require new switches and controls that UPRR would need to integrate into its existing dispatching system. The construction costs of either Mills alternative (Alternative N1a or N1b) are at least 50 percent greater than the construction costs of Alternative B and are about 16 percent greater and 22 percent greater, respectively, than the construction costs of the longest option, Alternative B3 (HDR 2012). The Mills alternatives have a higher potential to affect the least chub, a State of Utah sensitive species.

On the basis of this analysis and considering all of the new data gathered for this Supplemental Draft EIS, OEA determined that Alternatives B and B3 represent reasonable northern terminus alternatives and carried these alternatives forward into a detailed environmental analysis. Alternative B3 would affect about the same acreage of wetlands as the alternatives at Mills but would avoid the logistically complicating factors that would be associated with a new siding at Mills and a new rail overpass of I-15. Alternatives B and B3

would also require much less earthwork, which would result in fewer impacts to wildlife habitat, land use, and air quality.

Table 2-1. Comparison of Northern Alternatives

Alternative	Advantages	Disadvantages
N1a Mills Alternative	• Avoids wetlands at Chicken Creek Reservoir • Less track required than Alternative B and Alternative B3	• Requires new siding and controls to UPRR mainline track • Requires excessive excavation (more than 50 feet deep for up to 1 mile) to meet track design criteria • Steeper rail grades would increase operating costs and air and noise impacts during construction • Requires new bridge over I-15 • Would cost about $16 million more than Alternative B (which would cost about $28 million in the north portion) and about $6 million more than Alternative B3 • Could affect least chub
N1b Mills Alternative	• Avoids wetlands at Chicken Creek Reservoir • Less track required than Alternative B and Alternative B3	• Requires new siding and controls to UPRR mainline track • Requires excessive excavation (more than 50 feet deep for up to 0.5 mile) to meet track design criteria • Steeper rail grades would increase operating costs and air and noise impacts during construction • Requires new bridge over I-15 • Would cost over $18 million more than Alternative B and $8 million more than Alternative B3 • Could affect least chub
B Juab Alternative	• Topography allows flatter rail grades, thereby reducing operating costs and air pollutant emissions during operation and reducing construction footprint • Avoids need for new bridge crossing of I-15 • Avoids need for new siding and control signals at UPRR mainline • Meets UPRR preference for a connection at an existing siding near Juab and Sharp	• Would fill about 1.5 acres of wet meadow and playa wetlands in the vicinity of Chicken Creek Reservoir • Would convert about 77 acres of non-irrigated farmland to rail right-of-way • Would fill 1.0 acre more wetlands than Alternatives N1a, N1b, or B3
B3 Juab/Sharp Alternative	• Topography is similar to that of Alternative B • Avoids need for new bridge crossing of I-15 • Avoids need for new siding and control signals at UPRR mainline • Meets UPRR preference for a connection at an existing siding near Juab and Sharp	• Would fill less than 0.5 acre of wet meadow wetlands east of Chicken Creek Reservoir • Would convert about 115 acres of non-irrigated farmland to rail right-of-way • Would cost about $10 million more than Alternative B and $6 million and $8 million less than Alternatives N1a and N1b, respectively

OEA determined that, although Alternatives N1a and N1b maybe technically feasible, they are logistically impracticable due to construction impediments and rail operations issues and have a higher potential to affect a sensitive species. Therefore, OEA determined that Alternatives B and B3 are the most reasonable and practicable alternatives to carry forward for detailed environmental review.

The Applicant's Proposed Action in the Draft EIS was Alternative B. The Applicant has adopted Alternative B, in combination with Alternative B2 south of U.S. 50, as its Proposed Action in this Supplemental Draft EIS. Alternative B would begin at Juab and would have a greater impact on wetlands than Alternative B3 but has a lower overall cost and a simpler connection with the UPRR mainline.

2.1.1.2 Southern Alternatives

On the south, Alternative B parallels the Sevier River west of Redmond and Salina, where the alignment passes through about 10.8 acres of riparian wetlands. For this Supplemental Draft EIS, OEA examined the southern alternatives presented in the Draft EIS and developed new ones to identify opportunities to avoid or reduce impacts on wetlands. This analysis resulted in two new alternatives (Alternatives B1 and B2) that were formed by adjusting the Proposed Action in the Draft EIS (see Figure 2-5 below).

Alternative B1 was created by shifting Alternative B to the west and away from the Sevier River. This alternative option starts (diverges from Alternative B) about 1.75 miles north of the U.S. 50 crossing, as shown in Figure 2-5 below. The alternative is on the same alignment as Alternative B from a point about 1 mile south of the alignments' crossing of U.S. 50 to the southern terminus. Because of this shift in alignment to the west, the alternative would fill a total of 5.2 acres of wetlands, thereby reducing the impacts of Alternative B by 5.6 acres (avoiding 4.1 acres of wet meadow and 1.5 acres of emergent marsh). This alignment shift would add about 520 feet (0.09 mile) of additional track.

OEA then made further alignment adjustments to Alternative B1 and created an alternative referred to as Alternative B2. This alternative option follows the Alternative B1 alignment from the point where Alternative B1 diverges from Alternative B (1.75 miles north of the U.S. 50 crossing). Alternative B2 then continues south but on an alignment that is about 500 feet west of the alignment for Alternatives B and B1. Alternative B2 is on the same alignment as Alternatives B and B1 in the section south of U.S. 89, as shown in Figure 2-5 below. The total length of Alternative B2 is about 600 feet (0.11 mile) longer than that of Alternative B.

Although the additional alignment adjustments made for Alternative B2 are minor, they result in reduced wetland impacts in this southern section. Wetland impacts would be reduced from 10.8 acres (Alternative B) to 1.6 acres, thereby avoiding impacts to 9.2 acres of wetlands (4.4 acres of wet meadow and 4.8 acres of emergent marsh). Because of this reduction, the Applicant has adopted this modified alignment, in combination with Alternative B north of U.S. 50, as its Proposed Action in this Supplemental Draft EIS.

Figure 2-5. Southern Alternatives Evaluated by OEA

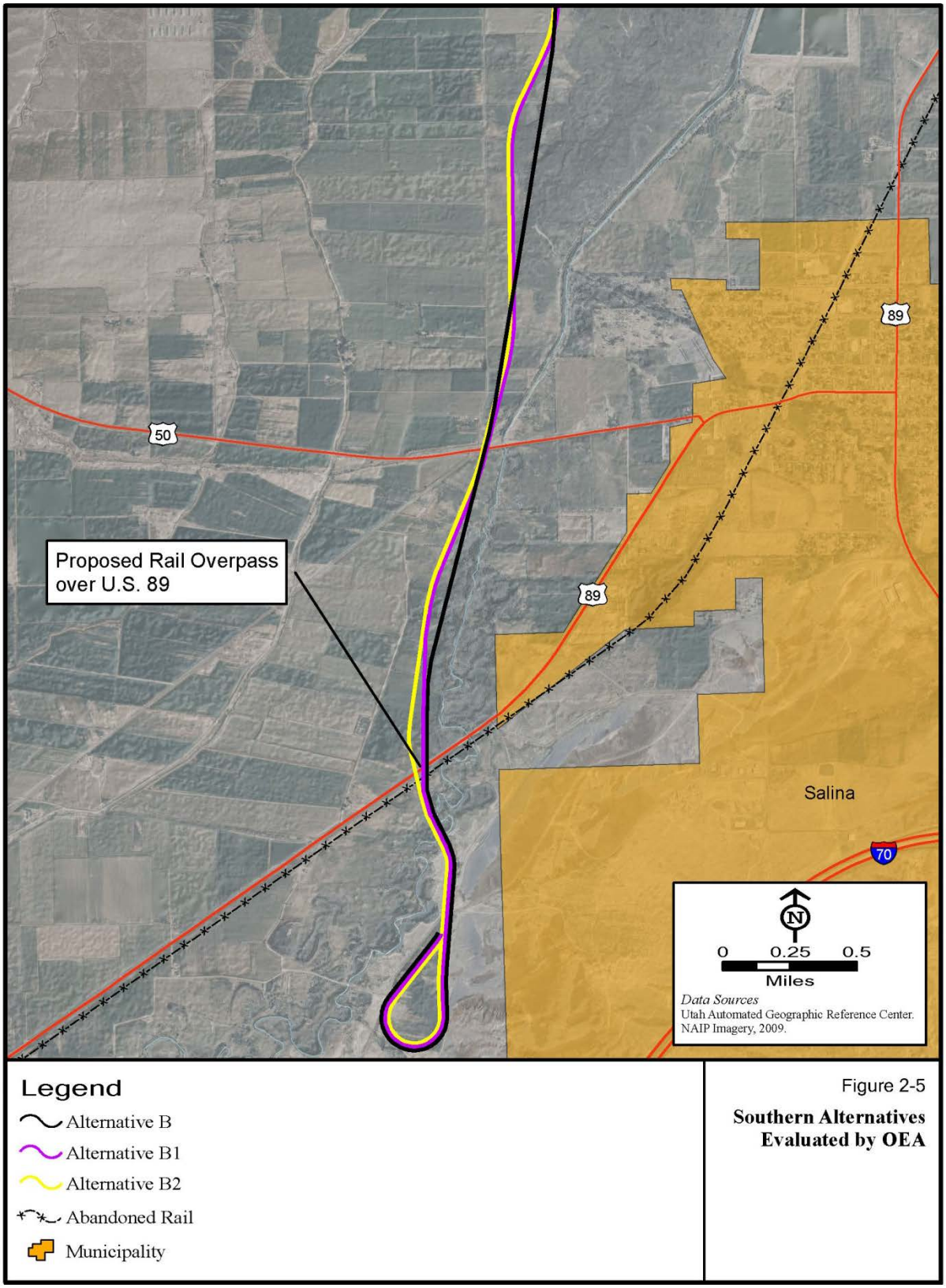


Table 2-2 compares the three southern alternatives: Alternatives B, B1, and B2. The southern portion of the Proposed Action in this Supplemental Draft EIS (Alternative B2) would have the least impact on wetlands of the three southern alternatives. This alternative would also be the longest of the three alternatives and would have slightly greater impacts on private land. Impacts to farmland would be similar for all alternatives in the south.

Table 2-2. Comparison of Southern Alternatives

Alternative	Advantages	Disadvantages
B	• Less track required than with Alternatives B1 or B2 (32 miles vs. about 32.1 miles for Alternatives B1 and B2)	• Would fill about 10.8 acres of wetlands • Would convert 66 acres of irrigated farmland and 50 acres of non-irrigated farmland to rail right-of-way • Would convert about 225 acres of private land to rail right-of-way
B1	• Would reduce wetland impacts by 5.6 acres vs. Alternative B	• Would fill about 5.2 acres of wetlands • Would convert 66 acres of irrigated farmland and 50 acres of non-irrigated farmland to rail right-of-way • Would convert about 226 acres of private land to rail right-of-way • Slight increase in costs due to additional track
B2	• Would have the least impact on wetlands	• Would fill about 1.6 acres of wetlands • Would convert 116 acres of irrigated and non-irrigated cropland to rail right-of-way • Would convert about 226 acres of private land to rail right-of-way • Slight increase in costs due to additional track

2.2 Alternatives Considered in Detail in the Supplemental Draft EIS

This Supplemental Draft EIS considers the following alternatives, which are shown in Figure 2-6 below.

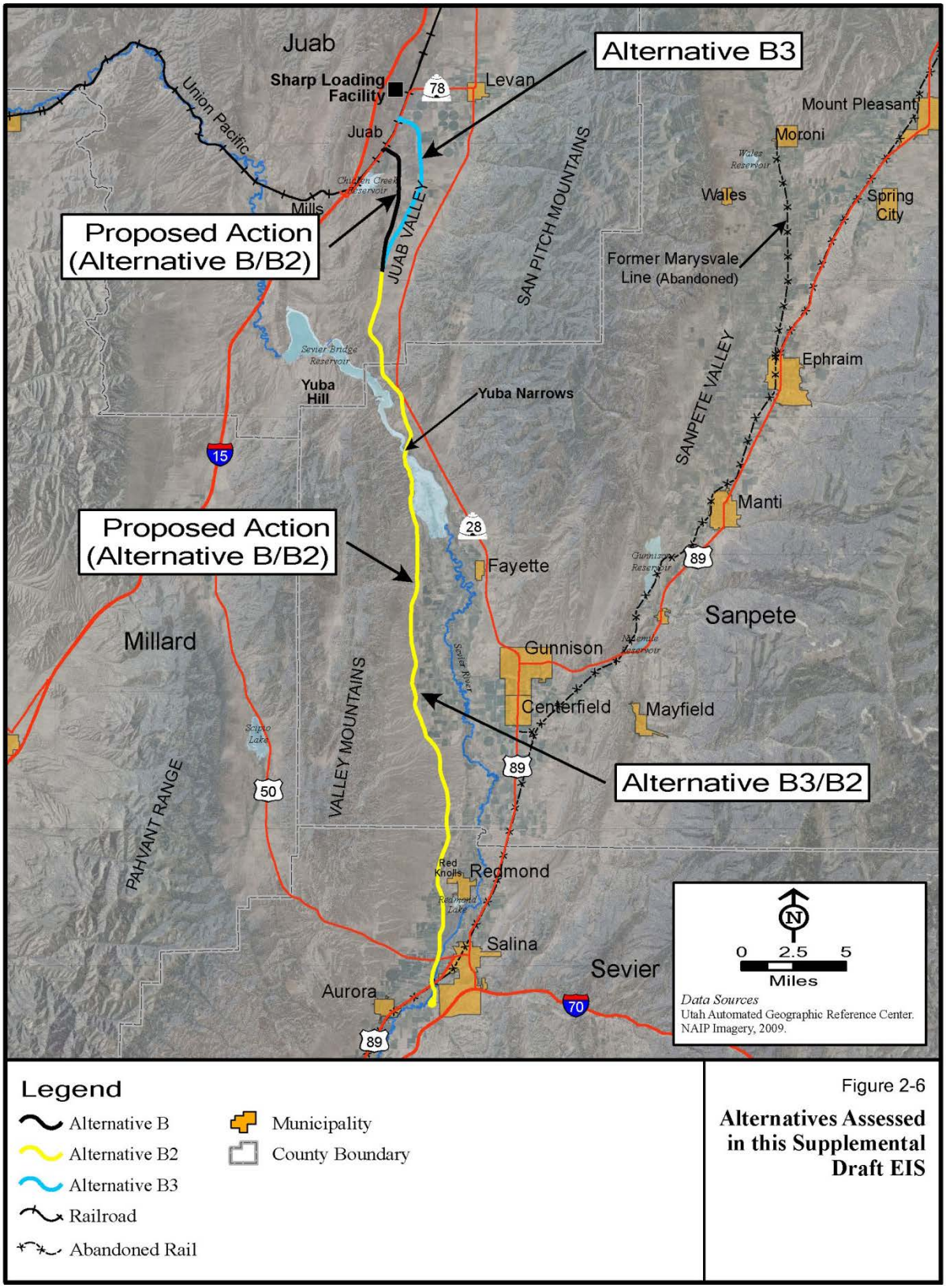
Northern Alternatives

- **Alternative B.** Alternative B was the Applicant's Proposed Action in the Draft EIS. The northern portion of Alternative B is the northern portion of the Applicant's Proposed Action in this Supplemental Draft EIS. This alternative connects with the UPRR mainline at the Juab siding and proceeds southerly to the Juab County–Sanpete County border.
- **Alternative B3.** Alternative B3 is a new alternative designed to avoid filling the wetlands at Chicken Creek Reservoir and to avoid, to the extent practicable, impacts to irrigated farmland. The point of connection to the UPRR mainline is to the north toward the Sharp siding to avoid impacts on wetlands adjacent to Chicken Creek Reservoir. Because this alternative is at the northern end of the alignment, it would pair with either Alternative B1 or Alternative B2 on the southern end of the alignment.

Southern Alternatives

- **Alternative B1.** Alternative B1 is a modification of the southern portion of Alternative B. Alternative B1 was designed to further avoid wetland impacts on the southern end of the alignment. Segments of the rail line south of Redmond have been moved slightly west to avoid impacts to the riparian wetlands and related wildlife habitat west of the Sevier River. Because the routes for Alternatives B1 and B2 are very similar with the exception of fewer impacts on wetlands, Alternative B1 is eliminated from further detailed evaluation in this Supplemental Draft EIS.
- **Alternative B2.** Alternative B2 is a modification of the southern portion of Alternative B. Alternative B2 is the southern portion of the Applicant's Proposed Action in this Supplemental Draft EIS. Segments of the rail line south of Redmond to U.S. 89 have been moved slightly west to avoid impacts to the riparian wetlands west of the Sevier River. Alternative B2 avoids the greatest amount of wetlands on the southern end.

Figure 2-6. Alternatives Assessed in This Supplemental Draft EIS



2.2.1 Applicant's Proposed Action in This Supplemental Draft EIS – Alternative B/B2 (Combination of Alternative B on the North and Alternative B2 on the South)

The Applicant's Proposed Action in this Supplemental Draft EIS would begin at Juab and extend south to Salina. This alternative is the result of combining Alternative B on the north and Alternative B2 on the south. The Applicant prefers this alternative because it offers the shortest alignment, takes advantage of the existing siding at Juab, and terminates at Salina.

2.2.1.1 Alignment

The Applicant's preferred alignment has changed from the Draft EIS and now is a combination of Alternative B on the north and Alternative B2 on the south. It is referred to in this Supplemental Draft EIS as the Applicant's Proposed Action, or Alternative B/B2.

This alternative would involve constructing and operating a 43.2-mile rail line that begins at the UPRR track on the Juab siding and ends southwest of Salina. This connection would be a wye (a Y-shaped intersection) at the Juab siding. From this connection, the alternative alignment runs south and east of an irrigation pond called Chicken Creek Reservoir toward Yuba State Park. The alignment generally follows an existing power transmission line that runs through the center of the Juab Valley. The alignment follows the eastern boundary of Sevier Bridge Reservoir east of the Eagle View and Painted Rocks campgrounds in Yuba State Park.

The reservoir narrows just south of the Painted Rocks campground and forms an area referred to as the Yuba Narrows about 3 miles south of the Juab County–Sanpete County border. The proposed rail crossing would be adjacent to the high-voltage transmission line crossing. The alignment then crosses the Sevier Bridge Reservoir at Yuba Narrows and continues southward along the western edge of the reservoir. The alignment then enters the Sevier Valley, which is bounded on the west by the Pahvant Range and Valley Mountains and on the east by the San Pitch Mountains.

Past the southern end of the reservoir, the alignment continues southward along the western side of the Sevier Valley near irrigated farmland. The alignment continues southward on the valley's western side, passing on the west side of the town of Redmond. After passing Redmond, the alignment runs eastward toward the center of the valley. The alignment crosses U.S. 50 on the west side of Salina and continues southward, crossing U.S. 89/SR 118 and the Sevier River via a new rail overpass. The alignment then runs along the western side of hills near the Salina Industrial Park and terminates just before reaching I-70 in an area known as Lost Creek that is near Salina.

The rail line would consist of a single track and would be designed to UPRR standards and the recommendations of the American Railway Engineering and Maintenance-of-Way Association. For this project, the specific criteria include the following:

- Maximum grade:
  - Northbound: 1.0 percent
  - Southbound: 1.0 percent
- Maximum curvature, main track: 4 degrees
- Loading loop and approach: 10 degrees

The maximum grade is limited by the maximum grade in UPRR's Sharp Subdivision, where the Proposed Action would connect at the Juab siding. Matching grades would allow trains of the same size to operate between Provo, Utah, and the proposed rail line. Sidings would be necessary to allow trains to pass each other and to allow other train activity besides Bowie Resources' coal-mining operations. At this time, the need for sidings has been identified, and the environmental impacts of these sidings are considered within the project analysis area. The specific locations of sidings would be identified later during a review of final train operations. Where practicable, the Applicant would locate construction staging areas within the 200-foot temporary right-of-way. Staging areas would not be located in wetlands or other areas containing sensitive habitat.

The Proposed Action would require nine new at-grade public road/rail crossings and 43 new at-grade private (farm) road/rail crossings. The Applicant proposes a grade-separated crossing over U.S. 89. The proposed rail line would not cross any other interstate highway corridors; therefore, no other grade-separated crossings would be needed. The crossings of U.S. Highway 24 (U.S. 24) south of Salina and U.S. 50 west of Salina would require automatic crossing gates. Flashing lights would be placed on SR 78 west of Levan. The remaining paved and unpaved rural roads would be marked as necessary for train and public safety.

The Proposed Action would cross 13 water bodies. Bridges would be required for the Yuba Narrows and Sevier River crossings. The remaining water bodies (canals and creeks) that would be crossed would require smaller bridges or culverts.

The right-of-way would consist of a single track, except at the northern interchange yard south of Nephi near Juab (connection with the existing UPRR mainline) and the load-out facility in Salina. A 100-foot-wide right-of-way would be required for permanent operation, and a 200-foot-wide right-of-way would be required for construction. The interchange yard, which is described in Section 2.2.1.3, Operation, of this chapter, would not be located in wetlands or sensitive habitats.

2.2.1.2 Construction

Construction of the Proposed Action would disturb about 1,047 acres for the main track, a new load-out facility about 0.5 mile southwest of Salina, and an interchange rail yard near the Juab siding on the UPRR mainline. This alternative would require about 523 acres[7] of permanent right-of-way: 31 acres now in Federal ownership, 143 acres in state ownership, and 349 acres in private ownership.

Construction could be accomplished in 24 to 30 months once an operator is identified, funding is available, and construction permits are obtained. About 77 employees would be needed during the railroad construction. Both temporary staging areas and temporary access roads would be necessary within the project right-of-way; however, specific locations have not yet been identified. No temporary work camps are anticipated.

No special construction needs or features (such as tunnels) have been identified. Some ballast material and fuel could be provided locally, but ballast, sub-ballast, ties, and rail materials

[7] This number is based on a permanent right-of-way width of 100 feet.

would likely come from outside the central Utah area. As much as possible, use of unearthed rocks and borrowing and disposing of soil would take place within the right-of-way. Otherwise, these materials would be removed and disposed of at an authorized facility. The Proposed Action would require about 1,300,000 cubic yards of borrow material. Materials would come from sites along the project area within the right-of-way that are between 0.25 mile and 0.5 mile from the centerline (Thorne 2006).

Water would be needed during construction for compacting embankments and controlling dust. The Applicant estimates that between 1,100 and 1,500 acre-feet of water would be needed. The Applicant would arrange to purchase this water from a local water association or individual water rights holder as necessary during construction. The method of delivery would be developed during subsequent design phases.

2.2.1.3 Operation

Rail operations for the Proposed Action in this Supplemental Draft EIS remain unchanged from the description provided in detail for Alternative B in the Draft EIS. The Applicant expects one round trip (two movements, which equals one full load and one empty back-haul) per day. About 100 to 110 cars would be involved in each round trip. The rail line would be designed to allow trains to travel 49 miles per hour. This is the maximum design speed allowed under the Federal Rail Administration requirements for freight train movements in non-signaled areas.

The Proposed Action would also include a small interchange yard located about 0.5 mile south of the UPRR mainline connection at Juab. The purpose of this yard would be to temporarily store loaded rail cars awaiting connection with mainline UPRR locomotives for shipment away from the Sevier Valley and store empty railcars awaiting return to the new loading facility near Salina. This yard would consist of at least three tracks including a "run-around" track. This track would allow a locomotive to move from the front of a car or train to the back or vice versa. This is helpful at the end of a branch line when the train must reverse direction or when switching cars. The exact length of the interchange yard has not been determined, but the Applicant expects it to be between 5,000 and 6,000 feet. The yard would be located to avoid any public or private road crossings.

Coal dust, which is produced by loading rail cars at the tipple,[8] would likely be reduced from current amounts. The existing tipple, which is about 5 miles west of Levan, would be dismantled, and a new tipple would be constructed about 0.5 mile southwest of Salina. The new tipple would incorporate technology advances to reduce the production of coal dust.

2.2.2 Alternative B3/B2 – Juab/Sharp to Salina (Combination of Alternative B3 on the North and Alternative B2 on the South)

This alternative is a combination of Alternative B3 at the northern end of the project area and Alternative B2 at the southern end. At the northern end of the project area, Alternative B3 would fill less wetlands than Alternative B (0.5 acre for Alternative B3 compared to 1.5 acres for Alternative B). Alternative B3 is about 1.9 miles longer than Alternative B and would

[8] A tipple is a structure used at a mine to load the extracted product (for example, coal or ores) for transport, typically into railroad hopper cars.

require more construction at the UPRR mainline connections. These factors are explained in Section 2.1.1.1, Northern Alternatives, of this chapter. As shown in Table 2-1 above, the additional length and construction at the connection would make Alternative B3 about $10 million more expensive to build than Alternative B (see Figure 2-6 above).

OEA concurs with the Applicant's preference of Alternative B2 on the southern end. Although slightly longer, this alternative would have the least impact on wetlands. For the combination of the northern and southern alignments, Alternative B3/B2 (Juab/Sharp to Salina) would:

- Be about 45.1 miles long, 1.9 miles longer than the Applicant's Proposed Action in this Supplemental Draft EIS
- Convert about 231 acres of farmland to rail right-of-way, compared to 193 acres that would be converted by the Applicant's Proposed Action
- Fill about 2.1 acres of wetlands, compared to 3.1 acres that would be filled by the Applicant's Proposed Action

Alternative B3/B2 connects with the UPRR mainline between the Juab and Sharp sidings. Additional construction to the mainline would be necessary to make this connection. From the UPRR mainline, Alternative B3/B2 proceeds southerly toward Yuba Hill. After crossing the Sevier Bridge reservoir at Yuba Narrows, Alternative B3/B2 remains on the west side of the Sevier River and follows the same route as that described above for the Proposed Action (Alternative B/B2).

Construction and operation of Alternative B3/B2 would be similar to that for the Proposed Action. The small increase in project length would not significantly alter the time needed for construction, although the additional length would result in slightly higher earthwork quantities and rail materials needs (rail, ballast, and ties, for example).

Alternative B3/B2 would also include a small interchange yard south of the UPRR mainline connection at Juab. The yard would be configured identically to the yard for the Proposed Action and would be located to avoid any public or private road crossings and additional wetland impacts.

2.2.3 Least Environmentally Damaging Practicable Alternative

USACE, which is a cooperating agency for this Supplemental Draft EIS, will identify the Least Environmentally Damaging Practicable Alternative (LEDPA) as part of the evaluation process for a Clean Water Act Section 404 permit. The criteria for determining the LEDPA are identified in the Section 404(b)(1) Guidelines [40 CFR 230.10(a)]. Essentially, these criteria establish that no discharge of dredged or fill material to jurisdictional waters of the U.S. shall be permitted if there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. An alternative is considered practicable if it is available and capable of being done after considering cost, existing technology, and logistics in light of overall project purposes.

2.2.4 Environmentally Preferred Alternative

OEA preliminarily concludes that Alternative B3/B2 (the combination of Alternative B3 on the north and Alternative B2 on the south) would be environmentally preferable to Alternative B/B2 because it would meet the purpose of and need for the project while minimizing impacts to wetlands and other natural resources.

2.2.5 Comparison of Alternatives for Four Major Parameters

Table 2-3 compares the Applicant's Proposed Action in this Supplemental Draft EIS (Alternative B/B2) and Alternative B3/B2. Comparisons are made for four major parameters that would have a direct impact on project construction and mitigation costs: length, wetlands, farmland converted, and land acquired.

A total project cost is not available. OEA estimates that Alternative B3/B2 would increase the overall project cost by about $10.1 million compared to the Applicant's Proposed Action.

Table 2-3. Comparison of Alternatives Based on Four Major Parameters

Alternative	Length (miles)	Wetlands Filled (acres)	Farmland Converted (acres)		Land Acquired (acres)		
			Irrigated	Non-irrigated	Federal	State	Private
Applicant's Proposed Action in this Supplemental Draft EIS (Alternative B/B2)							
Northern alternative, Alternative B	11.1	1.5	0	77	0	11	123
Southern alternative, Alternative B2	32.1	1.6	66	49	31	132	226
Total alternative, Alternative B/B2	43.2	3.1	66	126	31	143	349
Alternative B3/B2							
Northern alternative, Alternative B3	13.0	0.5	0	115	0	11	146
Southern alternative, Alternative B2	32.1	1.6	66	50[a]	31	132	226
Total alternative, Alternative B3/B2	45.1	2.1	66	165	31	143	372

[a] Value reported for non-irrigated farmland was rounded up slightly to match the calculated total for the entire Alternative B3/B2 alignment.

2.3 Overview of Environmental Impacts

Table 2-4 provides an overview of the potential environmental impacts of the Applicant's Proposed Action in this Supplemental Draft EIS (Alternative B/B2) and Alternative B3/B2. Impacts on 15 different resources are described. These impacts are discussed in detail in Chapter 3, Environmental Consequences, of this Supplemental Draft EIS. Most of the impacts of the two alternatives would be the same; the impacts that would be different are indicated in bold text in the table.

Table 2-4. Comparison of Impacts from the Alternatives Presented in This Supplemental Draft EIS

Resource Category	Applicant's Proposed Action – Juab to Salina (Combination of Alternatives B and B2)	Juab/Sharp to Salina (Combination of Alternatives B3 and B2)
Rail Operations and Safety	• Negligible impact to road crossings due to delays • Reduced truck traffic on SR 78, SR 28, U.S. 50, and U.S. 89, resulting in improved safety	• Negligible impact to road crossings due to delays • Reduced truck traffic on SR 78, SR 28, U.S. 50, and U.S. 89, resulting in improved safety • **Requires extending Juab siding 2.39 miles to connect to Sharp siding on the UPRR mainline**
Land Use	• **Loss of 66 acres of irrigated farmland and 126 acres of non-irrigated and sub-irrigated cropland** • Compatible with state and BLM land-use plans and policies	• **Loss of 66 acres of irrigated farmland and 165 acres of non- and sub-irrigated cropland** • Compatible with state and BLM land-use plans and policies
BLM Natural Areas	• No impacts to BLM Natural Areas in the region	• Same as Proposed Action
Biological Resources	• Loss of about 10.9 acres of habitat in Yuba State Park • Loss of 3.9 acres of habitat in Redmond Wildlife Management Area (WMA) • Potential short-term impacts to long-billed curlew habitat in Redmond WMA • Temporary impacts to wildlife during construction	• Loss of about 10.9 acres of habitat in Yuba State Park • **Loss of 3.9 acres of habitat in Redmond WMA** • Potential short-term impacts to long-billed curlew habitat in Redmond WMA • Temporary impacts to wildlife during construction
Water Resources	• Would affect 16 acres of regulatory floodplain • Would affect 174 acres of groundwater recharge area • **Would fill 3.1 acres of jurisdictional wetlands**	• Would affect 16 acres of regulatory floodplain • Would affect 174 acres of groundwater recharge area • **Would fill 2.1 acres of jurisdictional wetlands**
Topography, Geology, and Soils	• Would not affect geological conditions • Topography modifications would be minor • Would require about 1.4 million yards of material to construct rail embankment • Loss of 37 acres of prime farmland • Loss of 11 acres of farmland of state importance	• Same as Proposed Action

Table 2-4. Comparison of Impacts from the Alternatives Presented in This Supplemental Draft EIS		
Resource Category	**Applicant's Proposed Action – Juab to Salina (Combination of Alternatives B and B2)**	**Juab/Sharp to Salina (Combination of Alternatives B3 and B2)**
Energy Resources	• Decrease energy use from 2,832 million British thermal units (Btu)/day for truck shipping to 1,301 million Btu/day for truck and rail shipping	• Same as Proposed Action
Socioeconomics	• Loss of about 108 jobs in trucking industry, which could be offset by new jobs from rail line • Small increase in population of Sanpete and Sevier Counties due to increased economic development • Small increase in sales tax base • Negligible effects on agricultural industry and emergency response times • No impacts would be disproportionately borne by minority or low-income populations	• Same as Proposed Action
Historic Properties	• Adverse effect on 33 historic properties eligible for the National Register of Historic Places (NRHP)	• Same as Proposed Action
Recreation	• Would convert about 0.02% of BLM-administered land to rail right-of-way • Would affect short-term use of lake at Yuba Narrows during bridge construction • Would affect long-term use of about 10.9 acres of Yuba State Park due to withdrawal of land for rail right-of-way • Would have negligible impact on trail use	• Same as Proposed Action
Aesthetics	• Temporary impacts during construction • Moderate long-term impacts due to cut and fill slopes, loss of agricultural land, elevated rail structures, and drainage features	• Same as Proposed Action
Noise and Vibration	• Would remove up to about 750 trucks per day from local streets and highways; this would reduce noise and vibration impacts along truck routes • Increased noise impacts from train horns. One residence would be within the 65-dBA threshold noise contour (the area around the proposed rail line where wayside noise would be 65 dBA or greater on the A-weighted decibel scale) from the horn soundings required at road crossings • No impacts from wayside noise within the 65-dBA contour	• Same as Proposed Action
Air Quality	• Would remove 750 trucks per day from local streets and highways; this would improve air quality along the truck route	• Same as Proposed Action

Table 2-4. Comparison of Impacts from the Alternatives Presented in This Supplemental Draft EIS		
Resource Category	**Applicant's Proposed Action – Juab to Salina (Combination of Alternatives B and B2)**	**Juab/Sharp to Salina (Combination of Alternatives B3 and B2)**
Climate Change and Greenhouse Gases	• Would remove 750 trucks per day from local streets and highways, thus reducing the particulate air emissions and greenhouse gases produced by these truck trips by similar amounts • Reduction in particulate air emissions and greenhouse gases would be offset slightly by emissions from locomotives • Overall net result suggests that greenhouse gas emissions associated with this shift from truck to rail would be reduced by up to half, thereby producing a regional benefit, but global effects would be neutral	• Same as Proposed Action
Threatened and Endangered Species	• No impacts on species listed as endangered or threatened under the Endangered Species Act or State-listed species	• Same as Proposed Action
Hazardous Materials	• Hazardous materials would be stored at rail operations facilities and would be regulated by the State of Utah • Would not affect any hazardous materials sites	• Same as Proposed Action

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